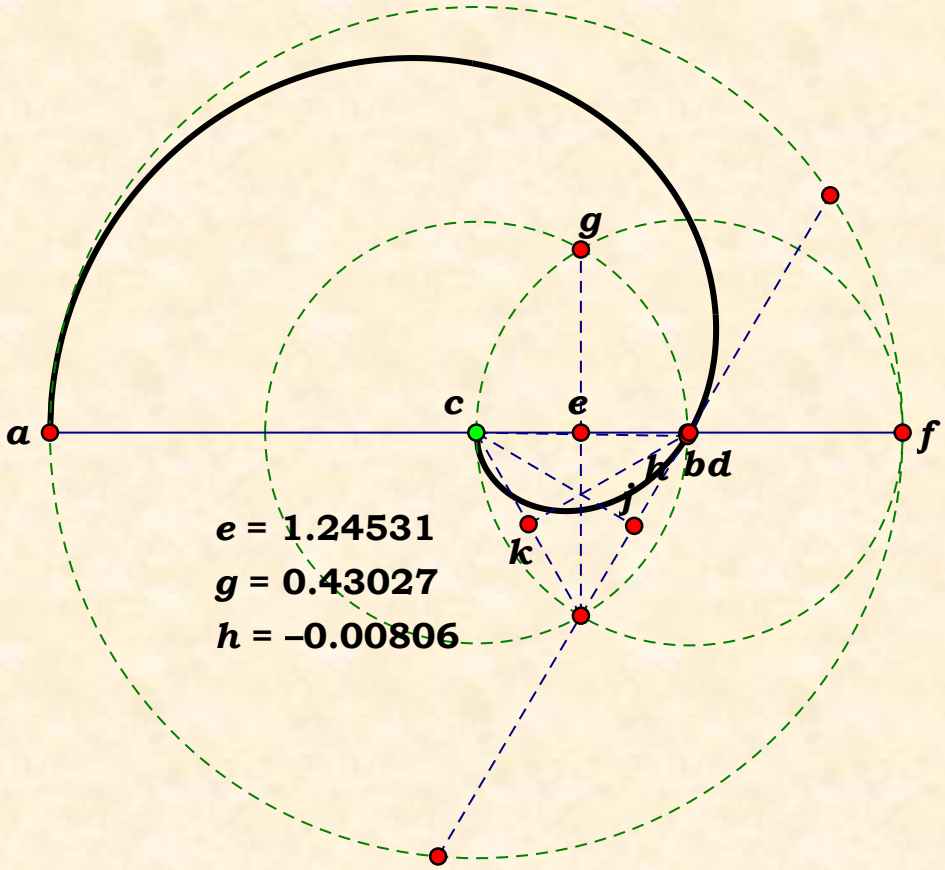
Logical Operators

$bh = -0.00806$

$\frac{bh}{\sqrt{bh^2}} = -1.00000$



Logic

Logic is the Art of Names. Names, however, in of themselves, have no meaning, thus, where is the Art?

The answer to the riddle is simple, relation to self is inadmissible, or again, the Law of Identity. Art is how we do our own work. So, Logic is Art with Names.

Name usage is divided between the Particular and the Universal. Descriptions are in the class of particulars, while Definitions reside in the class of universals. As Art with Names is aimed at predicative behavior, this means that we like to denote the word Logic as meaning the use of words for Definitions, as Plato did. Logic, is then the Art of learning how to take particular statements in order to construct a universal definition, or as Plato described it, the ability to see the one in the many and the many in the one. This is how it is done, as Plato described.

We first write up our particular example, step by step, until we reach the conclusion. This gives us an answer to that particular, which also transcribes into a quite workable universal definition. However, if one studies the chain of reasoning, one will find that many of the equations fail to work even though the final equation works perfectly. This fact has created a lot of mysticism in mathematics, such as imaginary numbers, or claims that certain figures have various “cases” which require each of them, some new proof.

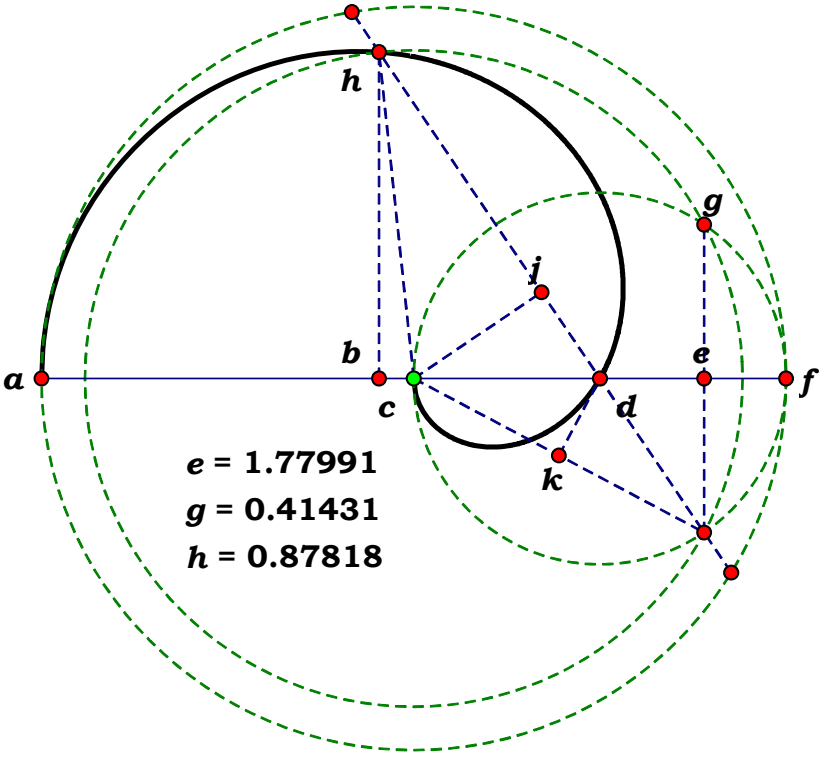
Decision making starts off, as Plato noted, with the ability to compare two things for equality. If these things are not equal, then one is less than or greater than the other. This is where logical operators come in.

The logical operator is very simple. It is expressed mathematically as, $\frac{a}{\sqrt{a^2}} = 1$ or -1, i.e., greater than or less than 0, or equal. a, can be, however any equation, such that every equation can become a logical operator. This means that where, on a so-called number line, they switch from 1 to -1, is determined by the operator, itself. We learn to build these logical operators by using the geometric figure to show us where they are needed, and the figure shows us how to write them.

In the *Basic Analog Mathematics Sample Dictionary*, I show how to make logical operators from any equation, however, I did not teach much, if anything, on how to use them. Logical operators, then, teach us how to take in the moment descriptions, and turn them into functional predictive and definitive equations.

I will start off with a figure which resembles the Fibonacci sequence.

062725 Spiral



Given:

$ac := 1 \quad ae := 1.77991$

Descriptions:

$cf := ac \quad cd := \frac{cf}{2} \quad ce := ae - ac$

$ad := ac + cd \quad de := (ae - ad)$

$dj := de \quad dh := cd + 2 \cdot dj$

$ef := cf - ce \quad bd := \frac{de \cdot dh}{cd}$

$eg := \sqrt{ce \cdot ef} \quad bh := \frac{eg \cdot bd}{de}$

$eg = 0.41431 \quad bh = 0.87818$

$(4 \cdot e - 5) \cdot \sqrt{3 \cdot e - e^2 - 2} = 0.87818$

$\sqrt{3 \cdot e - e^2 - 2} = 0.41431$

$\left((4 \cdot e - 5) \cdot \sqrt{3 \cdot e - e^2 - 2}\right) - h = 0.00000$

$\sqrt{3 \cdot e - e^2 - 2} - g = 0.00000$

Definitions:

$cf - 1 = 0 \quad cd - \frac{1}{2} = 0 \quad ce - (ae - 1) = 0$

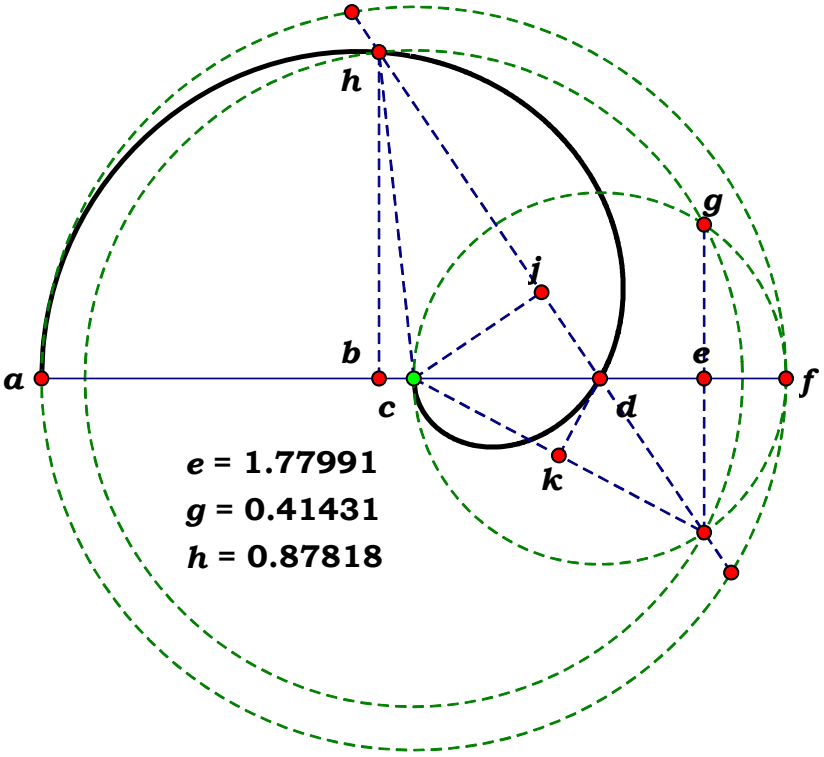
$ad - \frac{3}{2} = 0 \quad de - \left(ae - \frac{3}{2}\right) = 0 \quad dj - \left(ae - \frac{3}{2}\right) = 0$

$dh - \left(\frac{4 \cdot ae - 5}{2}\right) = 0 \quad ef - (2 - ae) = 0$

$bd - \frac{(2 \cdot ae - 3) \cdot (4 \cdot ae - 5)}{2} = 0 \quad eg := \sqrt{(ae - 1) \cdot (2 - ae)}$

$bh := (4 \cdot ae - 5) \cdot \sqrt{3 \cdot ae - ae^2 - 2}$

062725 Spiral



Given:

$ac := 1 \quad ae := 1.77991$

Descriptions:

$cf := ac \quad cd := \frac{cf}{2} \quad ce := ae - ac$

$ad := ac + cd \quad de := (ae - ad)$

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$ef := cf - ce \quad bd := \frac{de \cdot dh}{cd}$

$eg := \sqrt{ce \cdot ef} \quad bh := \frac{eg \cdot bd}{de}$

$eg = 0.41431 \quad bh = 0.87818$

$(4 \cdot e - 5) \cdot \sqrt{3 \cdot e - e^2 - 2} = 0.87818$

$\sqrt{3 \cdot e - e^2 - 2} = 0.41431$

$\left((4 \cdot e - 5) \cdot \sqrt{3 \cdot e - e^2 - 2}\right) - h = 0.00000$

$\sqrt{3 \cdot e - e^2 - 2} - g = 0.00000$

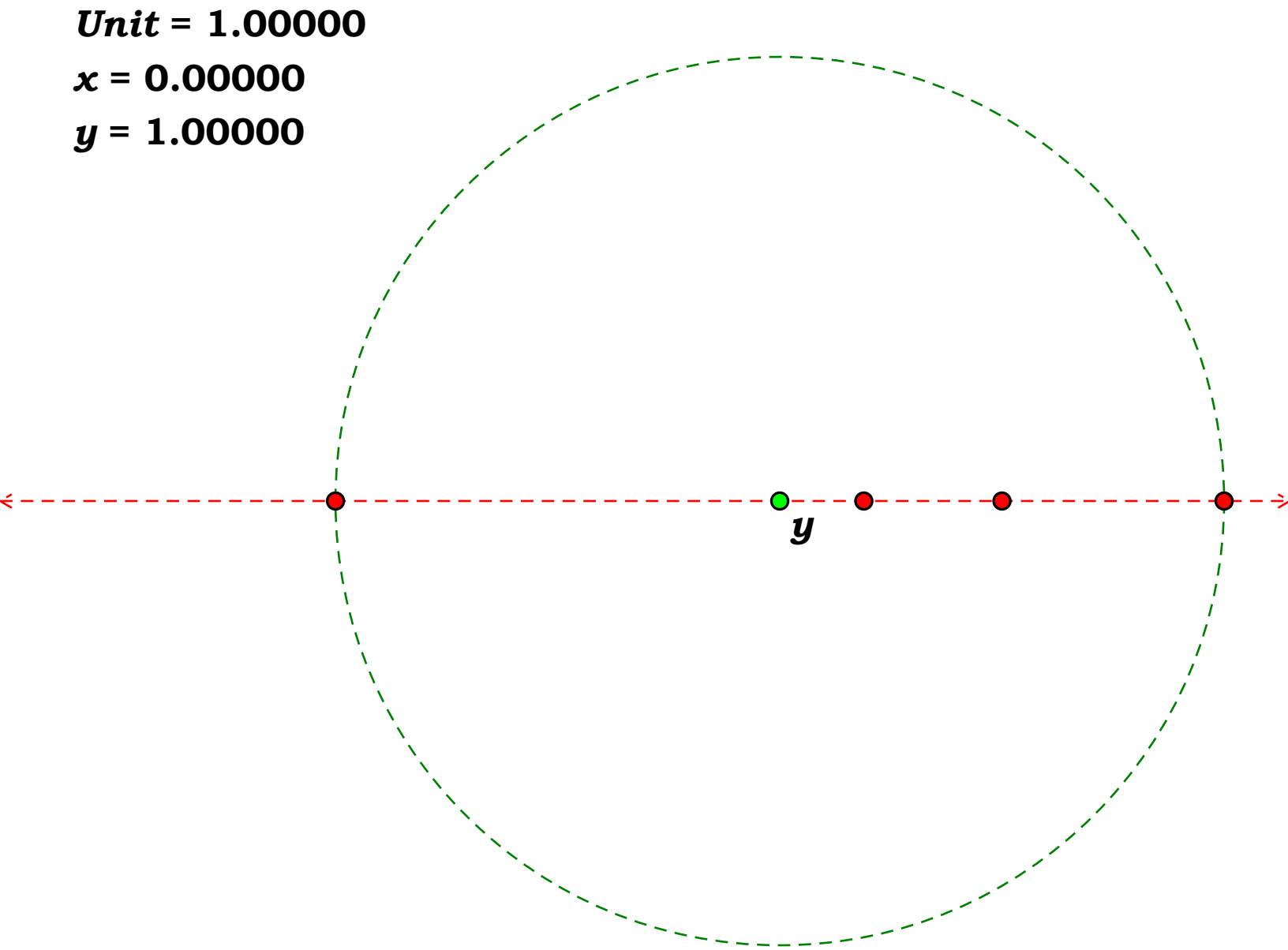
Definitions:

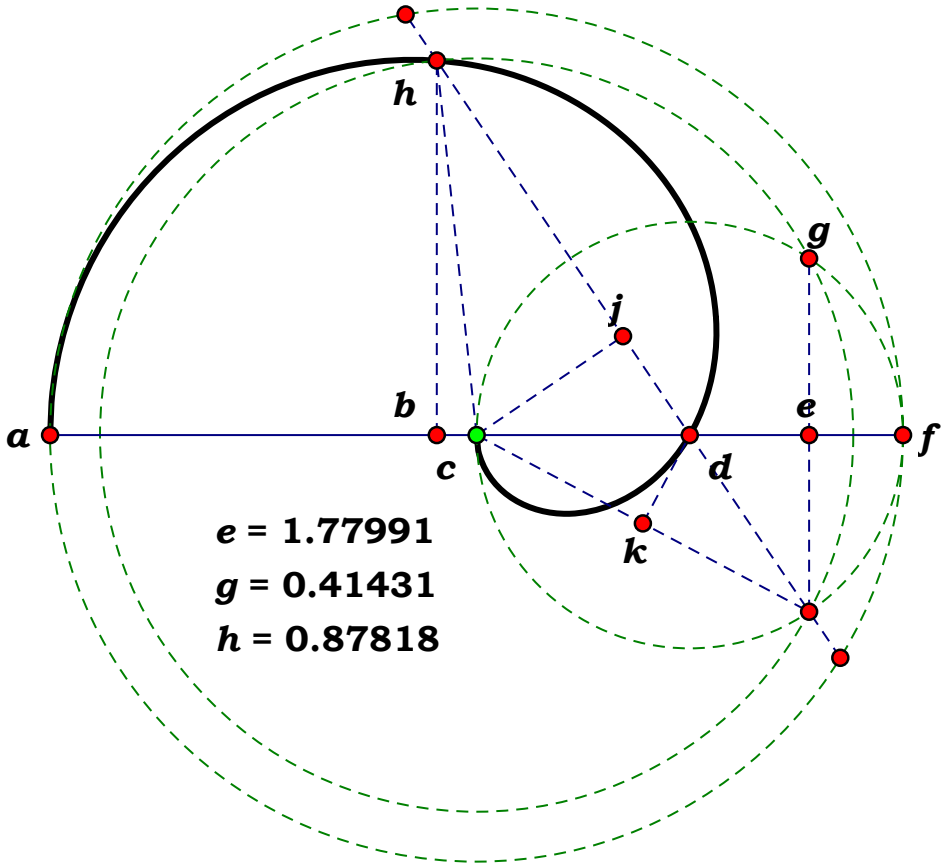
$cf - ac = 0 \quad cd - \frac{1}{2} = 0 \quad ce - (ae - 1) = 0 \quad ad - \frac{3}{2} = 0 \quad de - \frac{(3 - 2 \cdot ae)^2}{2 \cdot \sqrt{(2 \cdot ae - 3)^2}} = 0$

$dj - \frac{(3 - 2 \cdot ae)^2}{2 \cdot \sqrt{(2 \cdot ae - 3)^2}} = 0 \quad dh - \frac{\sqrt{(4 \cdot ae - 5)^2}}{2} = 0 \quad ef - (2 - ae) = 0$

$bd - \frac{\sqrt{[(2 \cdot ae - 3) \cdot (4 \cdot ae - 5)]^2}}{2} = 0 \quad eg - \sqrt{3 \cdot ae - ae^2 - 2} = 0$

$bh - (4 \cdot ae - 5) \cdot \sqrt{3 \cdot ae - ae^2 - 2} = 0 \quad \frac{bh}{eg} - (4 \cdot ae - 5) = 0$


Unit = 1.00000
x = 0.00000
y = 1.00000
y



$(4 \cdot e - 5) \cdot \sqrt{3 \cdot e - e^2 - 2} = 0.87818$

$\sqrt{3 \cdot e - e^2 - 2} = 0.41431$

$\left((4 \cdot e - 5) \cdot \sqrt{3 \cdot e - e^2 - 2}\right) - h = 0.00000$

$\sqrt{3 \cdot e - e^2 - 2} - g = 0.00000$

$$de - \left(ae - \frac{3}{2}\right) = 0.00000$$

$$dh - \frac{4\cdot ae - 5}{2} = 0.00000$$

$$bd - \frac{(2\cdot ae - 3)\cdot(4\cdot ae - 5)}{2} = 0.00000$$

Three out of eleven required logical operators asserted of them. Notice that these flaws did not effect the important last two equations.

$$\frac{(3 - 2\cdot ae)^2}{2\cdot\sqrt{(2\cdot ae - 3)^2}} = 0.21426$$

$$de - \frac{(3 - 2\cdot ae)^2}{2\cdot\sqrt{(2\cdot ae - 3)^2}} = 0.00000$$

$$\frac{\sqrt{(4\cdot ae - 5)^2}}{2} = 0.92852$$

$$dh - \frac{\sqrt{(4\cdot ae - 5)^2}}{2} = 0.00000$$

$$\frac{\sqrt{((2\cdot ae - 3)\cdot(4\cdot ae - 5))^2}}{2} = 0.39789$$

$$bd - \frac{\sqrt{((2\cdot ae - 3)\cdot(4\cdot ae - 5))^2}}{2} = 0.00000$$

$$\sqrt{3\cdot ae - ae^2 - 2} = 0.45177$$

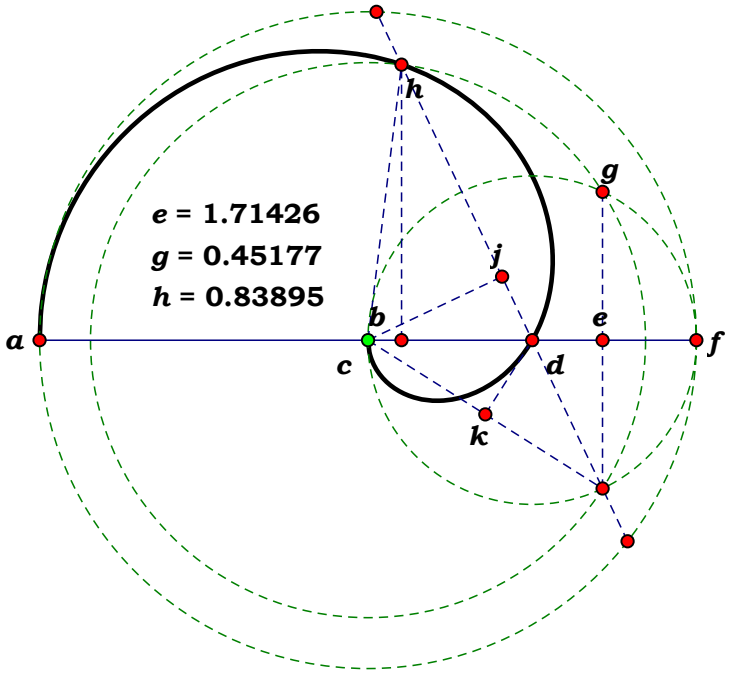
$$g - \sqrt{3\cdot ae - ae^2 - 2} = 0.00000$$

$$((4\cdot e - 5)\cdot\sqrt{3\cdot e - e^2 - 2}) = 0.83895$$

$$h - ((4\cdot e - 5)\cdot\sqrt{3\cdot e - e^2 - 2}) = 0.00000$$

$ac = 5.64208$ cm
$cf = 5.64208$ cm
$cd = 2.82104$ cm
$ae = 9.67200$ cm
$ce = 4.02992$ cm
$de = 1.20888$ cm
$dh = 5.23879$ cm
$bd = 2.24493$ cm

$cf = 1.00000$
$cd = 0.50000$
$ae = 1.71426$
$ce = 0.71426$
$ad = 1.50000$
$de = 0.21426$
$dh = 0.92852$
$bd = 0.39789$
$2\cdot ae - 3 = 0.42852$
$4\cdot ae - 5 = 1.85704$
$g = 0.45177$
$h = 0.83895$



$$de - \left(ae - \frac{3}{2}\right) = 0.68757$$

$$dh - \frac{4\cdot ae - 5}{2} = 0.37514$$

$$bd - \frac{(2\cdot ae - 3)\cdot(4\cdot ae - 5)}{2} = 0.00000$$

Three out of eleven required logical operators asserted of them. Notice that these flaws did not effect the important last two equations.

$$\frac{(3 - 2\cdot ae)^2}{2\cdot\sqrt{(2\cdot ae - 3)^2}} = 0.34379$$

$$de - \frac{(3 - 2\cdot ae)^2}{2\cdot\sqrt{(2\cdot ae - 3)^2}} = 0.00000$$

$$\frac{\sqrt{(4\cdot ae - 5)^2}}{2} = 0.18757$$

$$dh - \frac{\sqrt{(4\cdot ae - 5)^2}}{2} = 0.00000$$

$$\frac{\sqrt{((2\cdot ae - 3)\cdot(4\cdot ae - 5))^2}}{2} = 0.12897$$

$$bd - \frac{\sqrt{((2\cdot ae - 3)\cdot(4\cdot ae - 5))^2}}{2} = 0.00000$$

$$\sqrt{3\cdot ae - ae^2 - 2} = 0.36306$$

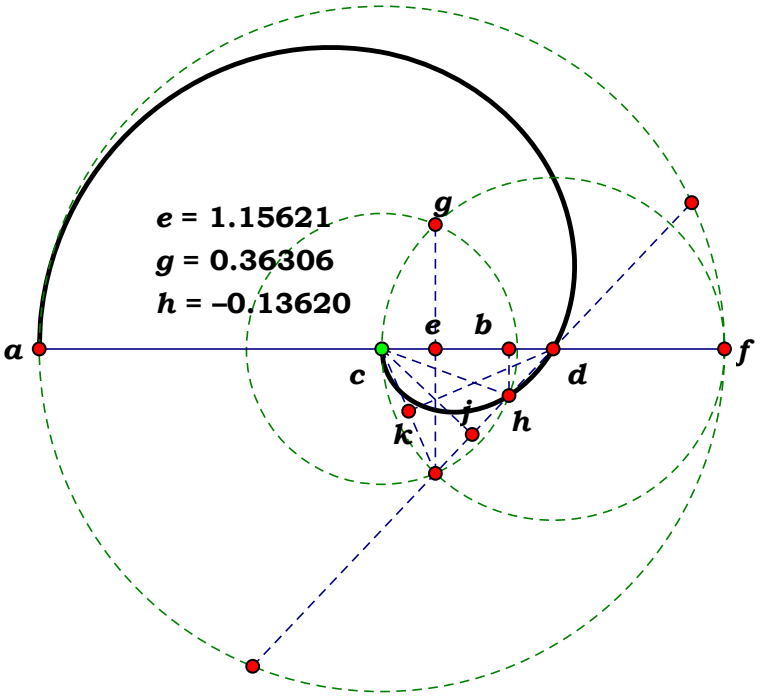
$$g - \sqrt{3\cdot ae - ae^2 - 2} = 0.00000$$

$$\left((4\cdot e - 5)\cdot\sqrt{3\cdot e - e^2 - 2}\right) = -0.13620$$

$$h - \left((4\cdot e - 5)\cdot\sqrt{3\cdot e - e^2 - 2}\right) = 0.00000$$

$ac = 5.64208$ cm
$cf = 5.64208$ cm
$cd = 2.82104$ cm
$ae = 6.52346$ cm
$ce = 0.88138$ cm
$de = 1.93967$ cm
$dh = 1.05829$ cm
$bd = 0.72765$ cm

$cf = 1.00000$
$cd = 0.50000$
$ae = 1.15621$
$ce = 0.15621$
$ad = 1.50000$
$de = 0.34379$
$dh = 0.18757$
$bd = 0.12897$
$2\cdot ae - 3 = -0.68757$
$4\cdot ae - 5 = -0.37514$
$g = 0.36306$
$h = -0.13620$



$$de - \left(ae - \frac{3}{2}\right) = 0.41558$$

$$dh - \frac{4\cdot ae - 5}{2} = 0.00000$$

$$bd - \frac{(2\cdot ae - 3)\cdot(4\cdot ae - 5)}{2} = 0.07017$$

Three out of eleven required logical operators asserted of them. Notice that these flaws did not effect the important last two equations.

$$\frac{(3 - 2\cdot ae)^2}{2\cdot\sqrt{(2\cdot ae - 3)^2}} = 0.20779$$

$$de - \frac{(3 - 2\cdot ae)^2}{2\cdot\sqrt{(2\cdot ae - 3)^2}} = 0.00000$$

$$\frac{\sqrt{(4\cdot ae - 5)^2}}{2} = 0.08442$$

$$dh - \frac{\sqrt{(4\cdot ae - 5)^2}}{2} = 0.00000$$

$$\frac{\sqrt{((2\cdot ae - 3)\cdot(4\cdot ae - 5))^2}}{2} = 0.03508$$

$$bd - \frac{\sqrt{((2\cdot ae - 3)\cdot(4\cdot ae - 5))^2}}{2} = 0.00000$$

$$\sqrt{3\cdot ae - ae^2 - 2} = 0.45478$$

$$g - \sqrt{3\cdot ae - ae^2 - 2} = 0.00000$$

$$\left((4\cdot e - 5)\cdot\sqrt{3\cdot e - e^2 - 2}\right) = 0.07678$$

$$h - \left((4\cdot e - 5)\cdot\sqrt{3\cdot e - e^2 - 2}\right) = 0.00000$$

$ac = 5.64208$ cm
$cf = 5.64208$ cm
$cd = 2.82104$ cm
$ae = 7.29075$ cm
$ce = 1.64867$ cm
$de = 1.17237$ cm
$dh = 0.47629$ cm
$bd = 0.19794$ cm

$cf = 1.00000$
$cd = 0.50000$
$ae = 1.29221$
$ce = 0.29221$
$ad = 1.50000$
$de = 0.20779$
$dh = 0.08442$
$bd = 0.03508$
$2\cdot ae - 3 = -0.41558$
$4\cdot ae - 5 = 0.16884$
$g = 0.45478$
$h = 0.07678$